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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,576	08/19/2003	Makoto Momota	Q77065	2952

23373 7590 09/21/2004

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EXAMINER

THORNTON, YVETTE C

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/642,576

Applicant(s)

MOMOTA, MAKOTO

Examiner

Yvette C. Thornton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/19/2003</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is written in reference to application number 10/642576 filed on August 19, 2003 and published as US 2004/0048190 A1 on March 11, 2004.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

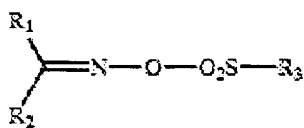
2. The Information Disclosure Statement filed on August 19, 2003 has been entered and fully considered.

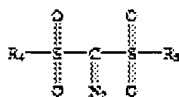
Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

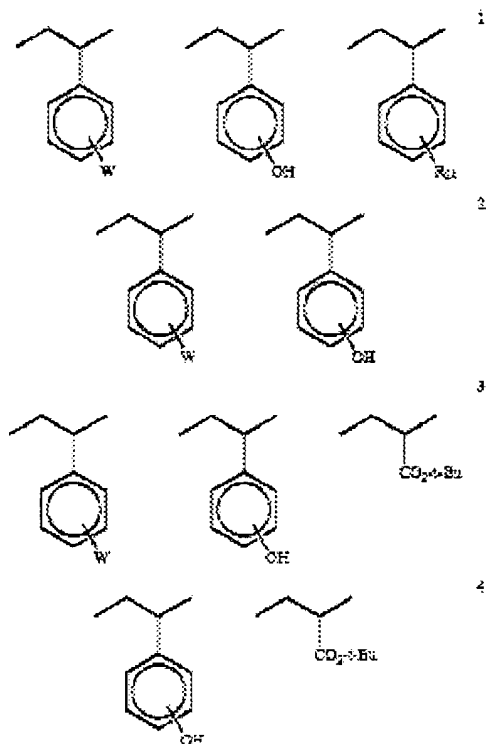
4. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being obvious over Momota et al. (US 6743562 B2) in view of Tan et al. (US 6740470 B2). Momota teaches a positive photoresist composition comprising (a) a resin, which decomposes by the action of an acid and at least one compound, represented

by formula (1)  and at least one compound represented by formula (2)



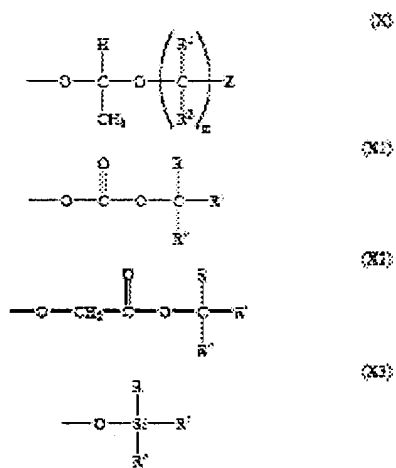
and generates an acid by exposure to active rays or radiation (c. 2, l. 1-46). It is the examiner's position that taught formula (1) and taught formula (2) meet the limitations of claimed formula (1) and (3), respectively. Preferred resin of taught resin (a) include resins 1-4

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wherein X is selected from the acid decomposable group (X),

(X1), (X2) and (X3), wherein those of the formula (X) are preferred.



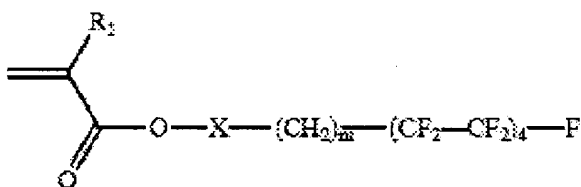
(c. 3, l. 39-c. 6, l. 67). It is the examiner's position that formula (X)

meets the limitations of claimed formula (X). In the taught invention, the content of repeating units having a group of formula (X) in such a resin is preferably in the range of 5-50 mol%, more preferably 5-30 mol% based on the whole repeating units (c. 6, l. 56-59), thereby meeting the limitations of instant claim 6. As the component (b), the compound of the formula (1) and the compound of the formula (2)

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are added at a molar ration of 90/10 to 15/85, preferably 80/20 to 20/80, more preferably 70/30 to 40/60 [instant cl. 5]. The compound (1) is added in an amount of 0.5-7 wt.%, preferably 0.5-5 wt.% more preferably 1-4 wt.% based on the solid content of the composition [instant cl. 3]. The compound (2) is added in an amount of 0.5-7 wt.%, preferably 0.5-5 wt.% more preferably 1-4 wt.% based on the solid content of the composition [instant cl. 4] (c. 19, l. 65-c. 20, l. 12). An organic basic compound may be employed to improve storage stability and to reduce the fluctuations of the line width due to PED [instant cl. 7] (c. 20, l. 23-67). The taught composition is applied to a substrate after being dissolved in a suitable solvent. The formed layer is then exposed through a certain mask, developed by baking whereby a satisfactory resist pattern can be formed (c. 23, l. 35-c. 24, l. 11). See examples 1-16.

5. Momota teaches all the limitations of the instant claims except it fails to teach the use of a fluoroaliphatic-group containing polymeric compound as set forth in the instant claims. Tan et al. (US '470 B2) teaches a positive photosensitive resin composition comprising a fluoroaliphatic group containing copolymer containing a repeating unit of monomer (i) represented by formula (1)



and a repeating unit (ii) having at least one of a

poly(oxyalkylene) acrylate and a poly(oxyalkylene) methacrylate. R1 of formula (1) is hydrogen or a methyl group; X is O, S or -N(R2)-; m is an integer of 1-6; n is an integer 2 or 3; and R2 is a hydrogen atom or an alkyl group having 1 to 4 carbon atoms (c. 4, l. 59-c. 5, l. 17). Tan teaches that the addition of the fluoroaliphatic containing polymer improves uniformity of the formed layer, provides a high contrast image without reducing the sensitivity and improves the inking property (c. 4, l. 15-58). It is the examiner's position that taught formula (1) meets the limitations of claimed formula (2).

6. One of ordinary skill in the art would have been motivated by the teachings of Tan to incorporate a fluoroaliphatic group containing copolymer comprising formula (1) and having at least one of a

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poly(oxyalkylene) acrylate and a poly(oxyalkylene) methacrylate into the composition of Momota in order to improve the uniformity of the taught layer and to provide a high contrast image without reducing the sensitivity.

7. The applied reference of Momota has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

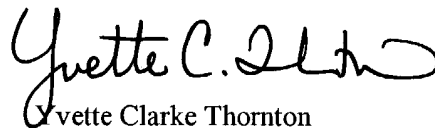
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 571-272-1336. The examiner can normally be reached on Monday-Thursday 8-6:30.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Yvette C. Thornton". The signature is fluid and cursive, with a large initial "Y" and a stylized "C".

Yvette Clarke Thornton
Primary Examiner
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yct
September 18, 2004